

3-6-00

A

UTILITY PATENT APPLICATION TRANSMITTAL
(Small Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.
30408-1001Total Pages in this Submission
3**TO THE ASSISTANT COMMISSIONER FOR PATENTS**Box Patent Application
Washington, D.C. 20231

Transmitted herewith for filing under 35 U.S.C. 111(a) and 37 C.F.R. 1.53(b) is a new utility patent application for an invention entitled:

PORTRAYAL OF HUMAN INFORMATION VISUALIZATION

and invented by:

CHARLES E. YOUNG1c530 U.S. PTO
09/517195
03/02/00If a **CONTINUATION APPLICATION**, check appropriate box and supply the requisite information:☒ **Continuation** ☐ **Divisional** ☐ **Continuation-in-part (CIP)** of prior application No.: **PCT/US98/18434**

Which is a:

☐ **Continuation** ☐ **Divisional** ☐ **Continuation-in-part (CIP)** of prior application No.: _____

Which is a:

☐ **Continuation** ☐ **Divisional** ☐ **Continuation-in-part (CIP)** of prior application No.: _____

Enclosed are:

Application Elements

1. ☒ Filing fee as calculated and transmitted as described below
2. ☒ Specification having 10 pages and including the following:
 - a. ☒ Descriptive Title of the Invention
 - b. ☒ Cross References to Related Applications (if applicable)
 - c. ☐ Statement Regarding Federally-sponsored Research/Development (if applicable)
 - d. ☐ Reference to Microfiche Appendix (if applicable)
 - e. ☒ Background of the Invention
 - f. ☒ Brief Summary of the Invention
 - g. ☒ Brief Description of the Drawings (if drawings filed)
 - h. ☒ Detailed Description
 - i. ☒ Claim(s) as Classified Below
 - j. ☒ Abstract of the Disclosure

UTILITY PATENT APPLICATION TRANSMITTAL (Small Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

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3

Application Elements (Continued)

3. ☒ Drawing(s) (when necessary as prescribed by 35 USC 113)
- a. ☒ Formal b. ☐ Informal Number of Sheets 5
4. ☒ Oath or Declaration
- a. ☒ Newly executed (original or copy) ☐ Unexecuted
- b. ☐ Copy from a prior application (37 CFR 1.63(d)) (for continuation/divisional application only)
- c. ☒ With Power of Attorney ☐ Without Power of Attorney
- d. ☐ DELETION OF INVENTOR(S)
Signed statement attached deleting inventor(s) named in the prior application,
see 37 C.F.R. 1.63(d)(2) and 1.33(b).
5. ☐ Incorporation By Reference (usable if Box 4b is checked)
The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
6. ☐ Computer Program in Microfiche
7. ☐ Genetic Sequence Submission (if applicable, all must be included)
- a. ☐ Paper Copy
- b. ☐ Computer Readable Copy
- c. ☐ Statement Verifying Identical Paper and Computer Readable Copy

Accompanying Application Parts

8. ☐ Assignment Papers (cover sheet & documents)
9. ☐ 37 CFR 3.73(b) Statement (when there is an assignee)
10. ☐ English Translation Document (if applicable)
11. ☐ Information Disclosure Statement/PTO-1449 ☐ Copies of IDS Citations
12. ☐ Preliminary Amendment
13. ☒ Acknowledgment postcard
14. ☒ Certificate of Mailing
- ☐ First Class ☒ Express Mail (Specify Label No.): EL409287987US

UTILITY PATENT APPLICATION TRANSMITTAL (Small Entity)

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3

Accompanying Application Parts (Continued)

15. ☐ Certified Copy of Priority Document(s) (if foreign priority is claimed)
16. ☒ Small Entity Statement(s) - Specify Number of Statements Submitted: 1
17. ☒ Additional Enclosures (please identify below):

Associate Power of Attorney

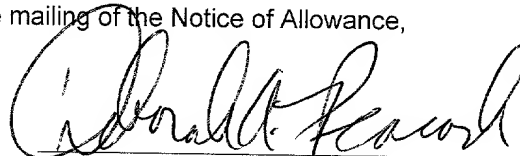
Fee Calculation and Transmittal

CLAIMS AS FILED

For	#Filed	#Allowed	#Extra	Rate	Fee
Total Claims	20	- 20 =	0	x \$9.00	\$0.00
Indep. Claims	2	- 3 =	0	x \$39.00	\$0.00
Multiple Dependent Claims (check if applicable) <input type="checkbox"/>					\$0.00
BASIC FEE					\$345.00
OTHER FEE (specify purpose)					\$0.00
TOTAL FILING FEE					\$345.00

- ☒ A check in the amount of **\$345.00** to cover the filing fee is enclosed.
- ☒ The Commissioner is hereby authorized to charge and credit Deposit Account No. **13-4213** as described below. A duplicate copy of this sheet is enclosed.
- ☐ Charge the amount of _____ as filing fee.
- ☒ Credit any overpayment.
- ☒ Charge any additional filing fees required under 37 C.F.R. 1.16 and 1.17.
- ☐ Charge the issue fee set in 37 C.F.R. 1.18 at the mailing of the Notice of Allowance, pursuant to 37 C.F.R. 1.311(b).

Dated:


Signature

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

☒ Applicant **CHARLES E. YOUNG**☐ Patentee _____☐ Application☐ Patent No. _____☐ Filed on☐ Issued on _____Title: PORTRAYAL OF HUMAN INFORMATION VISUALIZATION**STATEMENT CLAIMING SMALL ENTITY STATUS
(37 CFR 1.9(f) and 1.27(c)) - SMALL BUSINESS CONCERN**

I hereby state that I am

☐ the owner of the small business concern identified below:☒ an official of the small business concern empowered to act on behalf of the concern identified below:Name of Small Business Concern Ameritest of CY Research, Inc.Address of Small Business Concern Number 2 San Rafael, NE,
Albuquerque, New Mexico 87122

I hereby state that the above identified small business concern qualifies as a small business concern, as defined in 13 CFR 121.12, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees to the United States Patent and Trademark Office under Sections 41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third-party or parties controls or has the power to control both.

I hereby state that rights under contract or law have been conveyed to, and remain with, the small business concern identified above, with regard to the invention described in

☒ the specification filed herewith, with title as listed above.☐ the application identified above.☐ the patent identified above.

If the rights held by the above-identified small business concern are not exclusive, each individual, concern or organization having rights in the invention is listed below* and no rights to the invention are held by any person, other than the inventor, who would not qualify as an independent inventor under 37 CFR 1.9(c), if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

**NOTE: Separate statements are required from each named person, concern or organization having rights to the invention as to their status as small entities. (37 CFR 1.27)*

Each such person, concern or organization having any rights in the invention is listed below:

- ☒ No such person, concern, or organization exists.
☐ Each such person, concern or organization is listed below.

Name _____

Address _____

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

Name _____

Address _____

☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small business entity is no longer appropriate. (37 CFR 1.28(b))

(check the following item, if desired)

NOTE: The following verification statement need not be made in accordance with the rules published on Oct. 10, 1997, 62 Fed Reg. 52,131, effective Dec. 1, 1997.

NOTE: "The presentation to the Office (whether by signing, filing, submitting, or later advocating) of any paper by a party, whether a practitioner or non-practitioner, constitutes a certification under § 10.18(b) of this chapter. Violations of § 10.18(b)(2) of this chapter by a party, whether a practitioner or non-practitioner, may result in the imposition of sanctions under § 10.18(c) of this chapter. Any practitioner violating § 10.18(b) may also be subject to disciplinary action. See §§ 10.18(d) and 10.23(c)(15)." 37 CFR § 1.4(d)(2).

☒ I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Name of Person Signing _____ Charles E. Young

Title of Person if Other Than Owner _____ **President**

Address of Person Signing _____ 1711 Quail Run Court, NE

Albuquerque, New Mexico 87112

SIGNATURE _____ 

Date _____ Feb 28, 2000

PORTRAYAL OF HUMAN INFORMATION VISUALIZATION

CROSS-REFERENCE TO RELATED APPLICATIONS

This is a continuation of International Application PCT/US98/18434, with an international
5 filing date of September 4, 1998. This application also claims the benefit of the filing of U.S.
Provisional Patent Application Serial No. 60/057,973, entitled *Method for Displaying How
Humans Visually Process Information*, filed on September 5, 1997, and the specification thereof
is incorporated herein by reference.

BACKGROUND OF THE INVENTION

Field of the Invention (Technical Field):

The present invention relates to display of information concerning human information
visualization, particularly of two-dimensional objects such as advertisements.

Background Art:

In developing effective means to communicate with people using visual presentations,
means for determining effectiveness of such presentations are required. In order to create
effective advertisements, for example, one must have an effective means of judging the effects
of the advertisement on the consumer. Preferably, such means must be easily and intuitively
20 understood by decision makers at all levels.

Prior mechanisms for assessing information concerning consumer processing of visual
information, of varying complexity, include U.S. Patent No. 5,676,138, to Zawilinski, entitled
"Emotional Response Analyzer System with Multimedia Display"; U.S. Patent No. 5,465,729, to
25 Bittman et al., entitled "Method and Apparatus for Biofeedback"; U.S. Patent No. 5,331,969, to
Silberstein, entitled "Equipment for Testing or Measuring Brain Activity"; U.S. Patent No.
5,227,874, to Von Kohorn, entitled "Method for Measuring the Effectiveness of Stimuli On
Decisions of Shoppers"; U.S. Patent No. 5,052,401, to Sherwin, entitled "Product Detector for a
Steady Visual Evoked Potential Stimulator and Product Detector"; U.S. Patent No. 4,861,154, to

Sherwin et al., entitled "Automated Visual Assessment System With Steady State Visual Evoked Potential Stimulator and Product Detector"; and U.S. Patent No. 4,647,964, to Weinblatt, entitled "Technique for Testing Television Commercials".

5 None of the above patents discloses the technique of the present invention in displaying information about reaction to an image by breaking the image into matrix cells and varying transparency of cells depending on information gathered about that cell. None of the prior disclosures are believed to have the intuitive impact of the present invention, and therefore are unlikely to be as successful in providing accurate information to decision makers.

10 SUMMARY OF THE INVENTION (DISCLOSURE OF THE INVENTION)

15 The present invention is of an apparatus and method for displaying viewer reactions to a display object comprising: dividing the display object into a plurality of spatial regions; collecting viewer reactions to an exposure to the display object; correlating the viewer reactions with the spatial regions; and displaying the display object with an aspect of the display of each spatial region being a function of the viewer reactions for the region. In the preferred embodiment, the display object is divided into a matrix, with each spatial region being a cell of the matrix. Collecting is preferably by exposing a viewer, or a plurality of viewers, to the display object for a duration between $\frac{1}{4}$ and 4 second, and most preferably a plurality of exposures to the display object are employed. The display object is displayed with the transparency (and/or color tingeing) of each spatial region being a function of the viewer reactions for the region. A static image (or images) may be displayed, or a motion picture sequence employed, preferably of a plurality of images corresponding to a plurality of viewer exposures to the display image.

25 A primary object of the present invention is to provide a straightforward means for displaying information collected about a display object's impact on viewers.

 A primary advantage of the present invention is that it is intuitively understandable by decision makers at all levels.

Other objects, advantages and novel features, and further scope of applicability of the present invention will be set forth in part in the detailed description to follow, taken in conjunction with the accompanying drawings, and in part will become apparent to those skilled in the art upon examination of the following, or may be learned by practice of the invention. The objects and advantages of the invention may be realized and attained by means of the instrumentalities and combinations particularly pointed out in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated into and form a part of the specification, illustrate several embodiments of the present invention and, together with the description, serve to explain the principles of the invention. The drawings are only for the purpose of illustrating a preferred embodiment of the invention and are not to be construed as limiting the invention. In the drawings:

Fig. 1 illustrates a display object to be displayed according to the invention;

Figs. 2-4 illustrate the display of the invention of viewer information collected about the display object of Fig. 1 at $\frac{1}{2}$, 1, and 4 second exposures, respectively; and

Fig. 5 is a schematic diagram of the preferred apparatus of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

(BEST MODES FOR CARRYING OUT THE INVENTION)

The purpose of the present invention is to provide an intuitively appealing method for displaying diagnostic research data or information collected about how an audience or sample of research subjects processes and responds to visually complex display objects. Such a method aids decision makers in quickly seeing the strengths and weaknesses of different elements of a display object in terms of how well they elicit desired effects.

An "display object", for purposes of the specification and claims, is any visual stimulus represented or projected on a two-dimensional surface and designed to communicate a specific set of messages in order to elicit an intended response from viewers of that stimulus. Display objects include print advertisements, pages from catalogs, magazines or other printed publications, and screens from pages published electronically, as on the Internet or CD-ROMs. Display objects also include photographs or artistic renderings used as virtual representations of three dimensional communication spaces such as store environments, exhibition spaces, or street scenes (e.g., one cluttered with signage).

The present invention is designed to work with various manners of data collection that measure a human response to various parts of a display object. Two data collection methods are preferred, but others will be seen to be useful with the present invention by one skilled in the art.

The first preferred data collection approach makes use of controlled time exposures via a computerized interview. Each respondent is exposed to the display object on a computer screen for a sequence of measured time periods. For example, the respondent might be exposed to the test for three time exposures: ½ second, 1 second, and 4 seconds. After each exposure, the respondent is asked to record what he or she saw. The respondent may also be asked to indicate where exactly on the page or screen he or she saw items and that data is recorded on a grid. The information is then coded to determine how long it takes for viewers to register key elements such as a headline, a character, a package, a brand name, or the like. Depending on the purposes of the study, different time periods and a different number of exposures may be used. This method of data collection measures the order in which respondents take in or process the information contained in a display object.

The second preferred data collection approach is concerned with how people respond to the different parts of the display object. Response can refer to likeability or appeal, purchase

interest, relevance, or some other measure of emotional or cognitive response. For this measurement, respondents are shown a copy of the display object with a grid or matrix superimposed over it and are asked to provide a rating of their level of response to each cell of the matrix.

The invention is of a method of displaying information gathered about a display object, such as that of Fig. 1, divided into a grid. First, an opaque screen in the form of an $n \times m$ matrix is superimposed on a copy of the display object. Next, the research measurement associated with a particular cell of the matrix is used to determine the degree of transparency of the part of the screen covering that cell. For example, if after a $\frac{1}{4}$ second exposure, 30% of respondents indicated that they noticed a package in the part of the display object contained in cell 1 x 2, then the degree of transparency of the opaque screen covering cell 1 x 2 would be set to a value which is a function of 30%, such as the function $x = x$, which results in a 30% transparency. This adjustment is preferably performed for all cells in the matrix for each measurement taken.

In order to display the sequence of viewer information processing, two types of display may be used. The first display presents all of the measurements collected simultaneously in a side-by-side arrangement of the different display screens associated with the timed exposures. An example of this type of display is shown in Figs. 2-4. Fig. 2 shows that the consumer's eye at the $\frac{1}{2}$ second mark is attracted to the message in the yellow box and the dog at the top of the display object. Fig. 3 shows that the attention at the 1-second mark moves down to the store's logo. Fig. 4 shows that at the 4-second mark the consumer begins examining the prices of products featured on the sides of the display object. A second display type is in the form of a movie that shows the progression of viewer attention in a more dynamic way, with a dramatic effect much like that of a photograph developing in the darkroom of viewer consciousness.

In order to display information about viewer response, a similar approach is used insofar as a semi-transparent screen divided into measurement cells is superimposed on the display

object. In order to remind decision-makers that a different measurement is being referred to in the display, color may be used with the degree of color saturation indexed to the underlying measurement.

5 Fig. 5 illustrates the preferred embodiment of the apparatus of the invention10. Personal computer 12, or like image processor, is used to receive and/or calculate the correlations between collected information from viewers and spatial regions of a display object designated by the user. The personal computer or image processor then places into video memory (or like storage) an appropriate image of the display object with spatial regions assigned different
10 transparencies and/or color tingeing. Images according to the invention may then be displayed in any manner known to the art, such as on a display18 or on surface 16 via projector 14 (such as a liquid-crystal device (LCD) projector).

15 Although the invention has been described in detail with particular reference to these preferred embodiments, other embodiments can achieve the same results. Variations and modifications of the present invention will be obvious to those skilled in the art and it is intended to cover in the appended claims all such modifications and equivalents. The entire disclosures of all references, applications, patents, and publications cited above are hereby incorporated by reference.

CLAIMS

What is claimed is:

- 5 1. A method for displaying viewer reactions to a display object, the method comprising the steps of:
 - a) dividing the display object into a plurality of spatial regions;
 - b) collecting viewer reactions to an exposure to the display object;
 - c) correlating the viewer reactions with the spatial regions; and
 - 10 d) displaying the display object with an aspect of a display of each spatial region being a function of the viewer reactions for the region.
2. The method of claim 1 wherein the dividing step comprises dividing the display
15 object into a matrix, with each spatial region being a cell of the matrix.
3. The method of claim 1 wherein the collecting step comprises exposing a viewer to
the display object for a duration between $\frac{1}{4}$ and 4 second.
4. The method of claim 1 wherein the collecting step comprises exposing a plurality
20 of viewers to the display object.
5. The method of claim 1 wherein the collecting step comprises exposing a viewer to
a plurality of exposures to the display object.
- 25 6. The method of claim 1 wherein the displaying step comprises displaying the
display object with transparency of a display of each spatial region being a function of the
viewer reactions for the region.

7. The method of claim 1 wherein the displaying step comprises displaying the display object with color tingeing of a display of each spatial region being a function of the viewer reactions for the region.

5 8. The method of claim 1 wherein the displaying step comprises displaying a static image.

9. The method of claim 1 wherein the displaying step comprises displaying images as a motion picture.

10 10. The method of claim 1 wherein the displaying step comprises displaying a plurality of images corresponding to a plurality of viewer exposures to the display image.

11. An apparatus for displaying viewer reactions to a display object, said apparatus comprising:

15 means for dividing the display object into a plurality of spatial regions;
means for correlating viewer reactions to an exposure to the display object with said spatial regions; and
means for displaying the display object with an aspect of a display of each
20 of said spatial regions being a function of the viewer reactions for said region.

12. The apparatus of claim 11 wherein said dividing means comprises means for dividing the display object into a matrix, with each of said spatial regions being a cell of said matrix.

25 13. The apparatus of claim 11 wherein said correlating means comprises means for correlating viewer reactions to exposures to the display object for a duration between $\frac{1}{4}$ and 4 second.

14. The apparatus of claim 11 wherein said correlating means comprises means for correlating viewer reactions of a plurality of viewers to the display object.

15. The apparatus of claim 11 wherein said correlating means comprises means for correlating viewer reactions of a plurality of exposures to the display object.

16. The apparatus of claim 11 wherein said display means comprises means for displaying the display object with transparency of a display of each of said spatial regions being a function of the viewer reactions for said region.

17. The apparatus of claim 11 wherein said display means comprises means for displaying the display object with color tingeing of a display of each of said spatial regions being a function of the viewer reactions for said region.

18. The apparatus of claim 11 wherein said display means comprises means for displaying a static image.

19. The apparatus of claim 11 wherein said display means comprises means for displaying images as a motion picture.

20. The apparatus of claim 11 wherein said display means comprises means for displaying a plurality of images corresponding to a plurality of viewer exposures to the display image.

PORTRAYAL OF HUMAN INFORMATION VISUALIZATION

ABSTRACT OF THE DISCLOSURE

An apparatus and method for displaying viewer reactions to a display object. The display
5 object is divided into a plurality of spatial regions, viewer reactions are collected to an exposure
to the display object and correlated with the spatial regions, and the display object is displayed
with an aspect of the display of each spatial region being a function of the viewer reactions for
the region.

10

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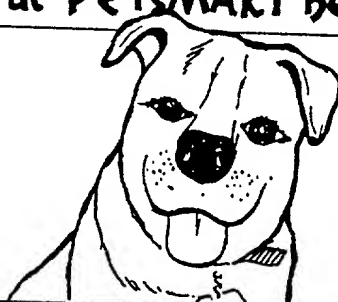
20

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I shop at PETSMART because



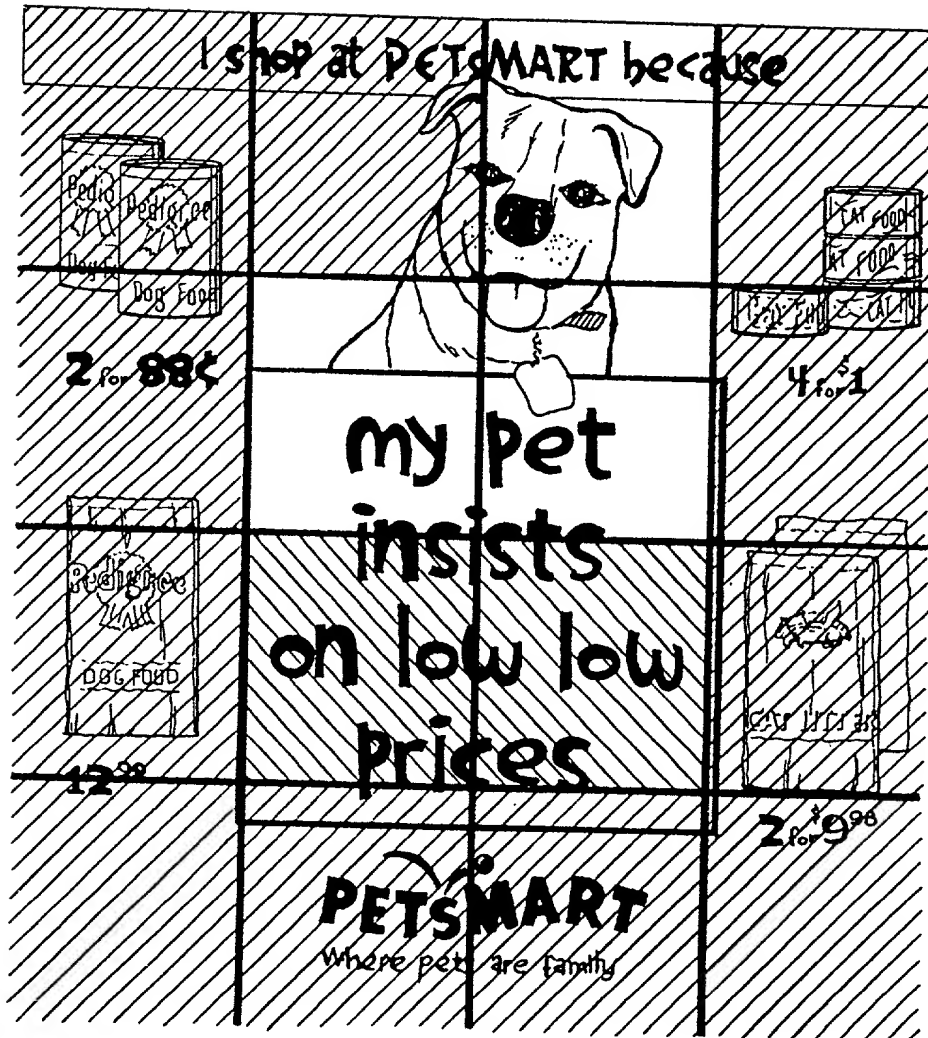
my pet
insists
on low low
prices



PETSMART
Where pets are family

FIG-1

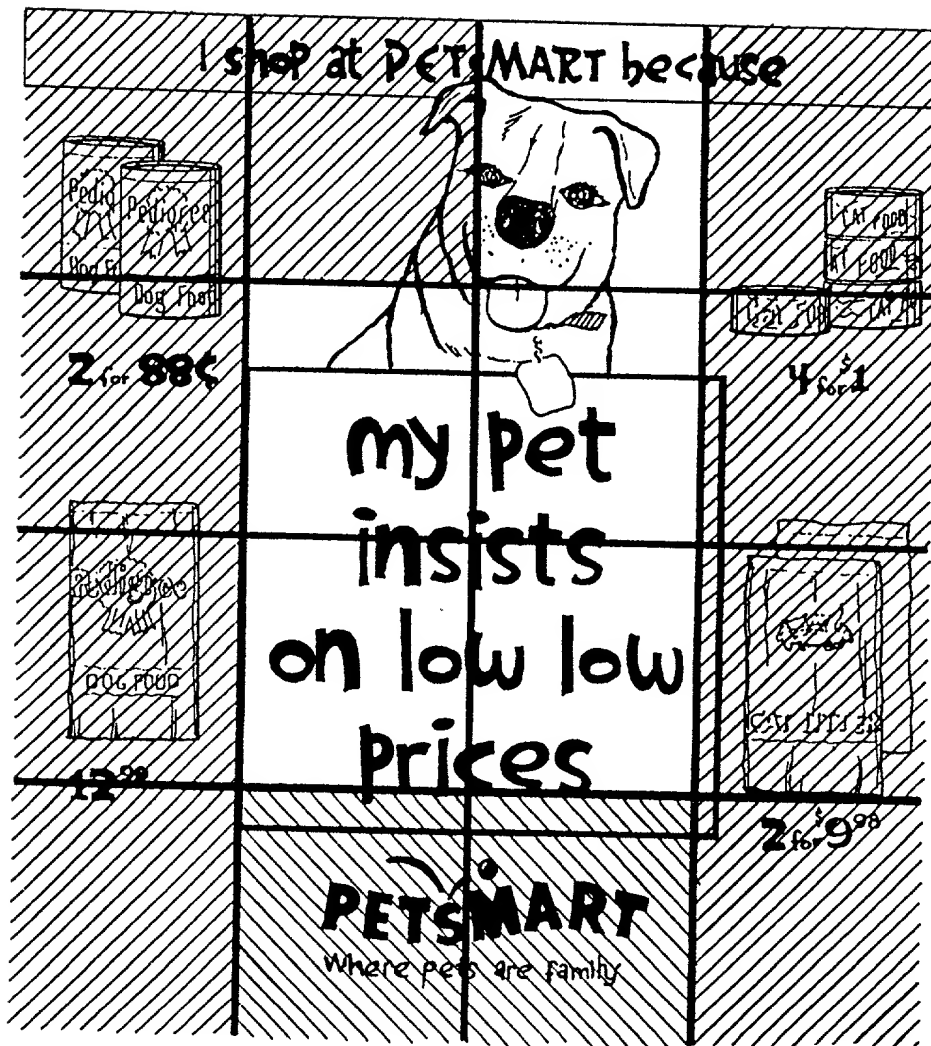
½ Second



The consumer's eye is attracted to the message in the boxes [with the words "my pet"] and the dog at the top of the ad.

Fig. 2

1 Second



The attention moves down from the store's logo (to the boxes with the "PetSmart" logo).

Fig. 3






 <p>2 for 88¢</p>		 <p>4 for \$1</p>
 <p>12.99</p>	<p>my pet insists on low low prices</p>	 <p>2 for 99¢</p>
<p>PETSMART where pets are family</p>		

Fig. 4

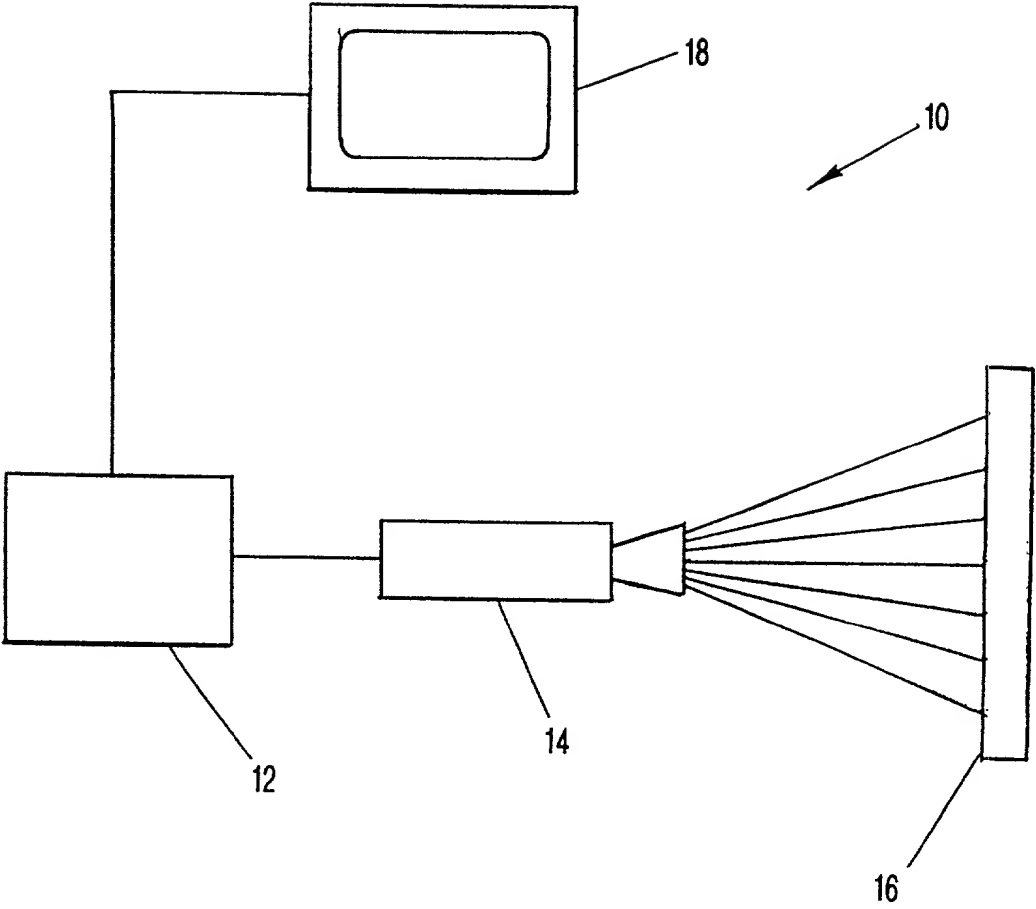


FIG-5

Docket No.

30408-1001

Declaration and Power of Attorney For Patent Application

English Language Declaration

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled
PORTRAYAL OF HUMAN INFORMATION VISUALIZATION

the specification of which

(check one)

☒ is attached hereto.

☐ was filed on _____ as United States Application No. or PCT International Application Number _____ and was amended on _____

(if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d) or Section 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)

Priority Not Claimed

PCT/US98/18434

PCT

04 SEP 1998

☐

(Number)

(Country)

(Day/Month/Year Filed)

(Number)

(Country)

(Day/Month/Year Filed)

☐

(Number)

(Country)

(Day/Month/Year Filed)

☐

I hereby claim the benefit under 35 U.S.C. Section 119(e) of any United States provisional application(s) listed below:

(Application Serial No.)

(Filing Date)

(Application Serial No.)

(Filing Date)

(Application Serial No.)

(Filing Date)

I hereby claim the benefit under 35 U. S. C. Section 120 of any United States application(s), or Section 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. Section 112, I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, C. F. R., Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. *(list name and registration number)*

Deborah A. Peacock, Reg. No. 31,649

Paul Adams, Reg. No. 21,096

Brian J. Pangre, Reg. No. 42,973

Andrea L. Mays, Reg. No. 43,721

Jeffrey D. Myers, Reg. No. 35,964

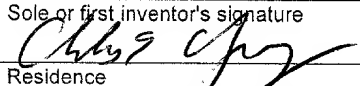
Rod D. Baker, Reg. No. 35,434

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Joseph Barrera, Reg. No. 44,522

Send Correspondence to: **DEBORAH A. PEACOCK**
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Direct Telephone Calls to: *(name and telephone number)*
 Deborah A. Peacock (505) 998-1501

Full name of sole or first inventor	CHARLES E. YOUNG	
Sole or first inventor's signature		Date 3/1/00
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Citizenship	USA	
Post Office Address	1711 QUAIL RUN COURT, NE	
	ALBUQUERQUE, NEW MEXICO 87122	

Full name of second inventor, if any	
Second inventor's signature	Date
Residence	
Citizenship	
Post Office Address	

CERTIFICATE OF MAILING BY "EXPRESS MAIL" (37 CFR 1.10)Applicant(s): **CHARLES E. YOUNG**

Docket No.

30408-1001Serial No.
To Be AssignedFiling Date
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